various systems of supply. It includes a number of important theorems relating to distributing networks, with the measurement of their insulation resistances and with the determination of the positions of faults.

The subject of dielectric strength is one on which Dr. Russell is a well-known authority, and the chapter on this subject is exceedingly good; it includes a number of useful tables for sparking voltages in air. There is a chapter on the grading and the heating of cables, and another on electrical safety valves, the book concluding with a chapter on lightning conductors. If the theories here given and their practical application were more clearly understood by all central station men, there would be a considerable reduction in the weight of copper which is now laid down in cable systems. It is to be hoped that an increasing amount of consideration will be given to the design of cables and distribution networks, and for this purpose the new edition of Dr. Russell's book will be of great value.

The Carbon Compounds.

A Text-book of Organic Chemistry. By E. de Barry Barnett. Pp. xii + 380. (London: J. and A. Churchill, 1920.) Price 15*s.* net.

SINCE almost all lecture courses on organic chemistry follow certain main lines, it is to be expected from financial reasons that new text-books on the subject will not diverge far from the older books in their general treatment of the material. All that can be expected from the authors is the infusion of fresh interest by a variation in the scope of the books and in the handling of details. This is to be regretted; but it is apparently almost inevitable.

Within these limitations Mr. Barnett has written an excellent book. It is clearly put, very well illustrated, furnished with formulæ much superior to those usually found in text-books, and in addition possesses certain features distinguishing it from the ordinary run of its class. The most original of these is the guide to the literature of organic chemistry which terminates the introduction, and this is supplemented by references to books at the end of those chapters where further information may be required. By these means the student will gain a truer perspective of the subject, and will not be inclined to assume that his text-book has made him a past-master in the field.

If there is any fault in the book, it lies in the fact that the author appears to over-estimate the mental quickness of the ordinary student. The theoretical side of the subject is dealt with as a whole at the beginning of the volume, and it seems probable that the book would gain considerably if this part of it were extended. Also, cross-references to this section in the body of the text would improve the work.

The commercial applications of organic chemistry are emphasised more frequently than in most text-books, and enough information is given about the heterocyclic section to enable the student to appreciate its importance from the point of view of naturally occurring materials. In a new edition some description of indicators other than phenolphthalein might be given, and possibly a brief reference to the flavones and anthocyanins included in the heterocyclic section.

The book is laudably free from errors, and no misprint in it is likely to give any trouble to a careful reader. The only important slip appears to be the erroneous formula for chloropicrin given on p. 150.

As a whole the book is marked by its fresh treatment of the material, and is to be welcomed. Its main drawback lies in its price.

A. W. S.

Our Bookshelf.

Anthropology and History: Being the Twenty-second Robert Boyle Lecture, delivered before the Oxford University Junior Scientific Club on June 9, 1920. By Dr. W. McDougall. Pp. 25. (London: Humphrey Milford; Oxford University Press, 1920.) Price 2*s.* net.

THE object of this instructive lecture is to illustrate the importance of the study of anthropology as an adjunct to the study of history. Anthropology is not exclusively concerned with the measuring of skulls, or with the study of primitive man, save for the sake of cultured man. Without it, it is impossible to understand the causes of the rise and fall of nations, to forecast their future, or to guide the statesman from the experience of the past. An alien culture can rarely be imposed upon a people by external power and authority. As examples of the effect of race upon culture, the lecturer points to the disappearance of Buddhism from India and its progress in Tibet and China; the relative distribution of the Roman Catholic and Protestant forms of Christianity in Europe; and the power of expansion as illustrated by the success of Great Britain and the failure of France to create a colonial empire. These last, capacity and incapacity, were evolved in the prehistoric period, because no adequate explanation of them in the historical period can be postulated, and similar diverse qualities are assigned by the earliest historians to the ancestral stocks of both peoples.

The races capable of producing and sustaining

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civilisation at a high level are generally formed from the blending of several peoples of superior natural endowments, when social institutions are free from the feeling of caste. This last condition is important, because the concentration of natural endowments in a privileged order inevitably leads to atrophy and decline. Men and nations are both free to choose and pursue their course towards higher ends, and anthropology, studied as a branch of history, will suggest the means by which this progress can be attained.

The Journal of the Institute of Metals. Vol. xxiii., No. 1, 1920. Edited by G. Shaw Scott. Pp. xii + 644 + xxx plates. (London: The Institute of Metals, 1920.) Price 31*s.* 6*d.* net.

THE large size of this volume, as compared with that of previous issues, is an indication of the growing interest in the metallurgy of the non-ferrous metals. Sir George Goodwin's presidential address demonstrates the importance of those metals to the Navy, an importance which would in itself justify the existence of the institute. The fifth report to the Corrosion Committee carries this valuable investigation a stage further, and succeeds in throwing light on the problem of the corrosion of condenser tubes, the new facts concerning the skin on the surface of a drawn tube being of distinct value to the discussion of the possible methods of lessening corrosion. A similar subject is dealt with in a paper by Dr. Seligman and Mr. Williams on the action of hard waters on aluminium. Mr. Vivian's paper on the alloys of tin and phosphorus is an excellent piece of thermal analysis, dealing with a system of which one component is highly volatile, thus introducing great experimental difficulties. The alloys of zinc with less than 15 per cent. of aluminium and copper respectively are described in a paper from the National Physical Laboratory, and Dr. Haughton, of that laboratory, also contributes a preliminary account of the investigation of alloys by determination of the thermo-electromotive force. Some remarkable results obtained a few years ago by Mr. Alkins in the drawing of copper wire, which indicated a discontinuous change of properties at a certain stage of reduction, are now confirmed by very careful further experiments. The results contained in another paper in the same volume, on the properties of rolled copper, make it clear that rolling affects the metal much more irregularly than drawing, so that definite conclusions are not easily reached. Other subjects dealt with are the casting of brass of high tensile strength, and the production of idiomorphic crystals of copper.

C. H. D.

Dead Towns and Living Men: Being Pages from an Antiquary's Notebook. By C. L. Woolley. Pp. viii + 259. (London: Oxford University Press, 1920.) Price 12*s.* 6*d.* net.

THIS is a lively account of a digger's life on ancient sites, mainly describing hobnobbing with Kurds and other amiable ruffians, or bluffing Turkish officials, revolver in hand. The methods may have been effective, but could scarcely be a settled mode of living. The first half of the title is rather neglected, as there is but little archæology, and only five views of Carchemish, which is the bait of the book. A dozen pages give a welcome account of the remains of the Hittite capital, of which as yet only a small part has been opened. The complete clearance of this capital of a scarcely known civilisation will take years to finish. When done, there are several other cities one beneath another, and the clearance of each of them will mean the removal of everything of later age. Obviously there should be a museum to hold all the Hittite sculptures, and the site bared to study the cities beneath, which descend 30 ft. below the level of four thousand years ago.

A different point of interest is the sketch of Egyptian mentality (pp. 39–44) when natives imagine that fine buildings are known, and offer to show them. This is a painfully frequent failing; here the view is taken that this is auto-suggestion really believed in, and capable of being extended to the minds of other people, who all become convinced of what does not exist. If we can take this view it will, perhaps, explain the Indian conjuring feats as being such suggestion on the minds of spectators. Can it also be the true view of the sights well known in Egypt, of men holding red-hot iron in the hands or mouth, which show no trace of blistering or burning after it? Is there a power of suggestion to compel hallucination on cool English observers? It is at least as likely as a power of resisting burns.

A Manual of Practical Anatomy: A Guide to the Dissection of the Human Body. By Prof. Thomas Walmsley. With a Preface by Prof. Thomas H. Bryce. In three parts. Part i., *The Upper and Lower Limbs.* Pp. viii + 176. (London: Longmans, Green, and Co., 1920.) Price 9*s.* net.

PROF. WALMSLEY, in this manual, ranges himself with those teachers of anatomy who think that the subject should be studied almost exclusively in the dissecting-room, and that the student should be encouraged to build up his knowledge of the subject from personal observations. In his text, therefore, the author confines himself to the description of what any average student can readily discover for himself, and in his illustrations to simple line drawings such as any average student can easily reconstruct and supplement. The purely descriptive parts are also everywhere subordinate to the instructions which are given as to the manner of dissection and as to what may be observed in the actual process of dissection. The text is singularly accurate for a first edition, but certain of the diagrams are not quite so satisfactory. In Fig. 2 the cutaneous nerves of the back (cervical region) are in excess; in Fig. 4 the median part of the front of the leg is not shown supplied by cutaneous nerves; in Fig. 7 the formation of the median nerve takes place on

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